

Remarks

A. Pending Claims

Claims 14-18 and 22-30 are pending. Claims 14 and 22 have been amended. Claims 19 and 32-36 have been cancelled. Claims 14-19, 22-30, and 32-36 have been rejected.

B. Amendments to the Claims

Applicant has amended the claims primarily for clarification purposes. Applicant submits that support the amendment to claim 14 can be found, for example, in claim 19. As such, Applicant submits that the amendments to claim 14 should not be construed as the addition of subject matter that would require an additional search by the Examiner.

C. The Claims Are Not Obvious Over Nishibayashi In View Of Klett Pursuant To 35 U.S.C. §103(a)

The Examiner rejected claims 14, 19, 22-24, 32, 35, and 36 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,171,691 to Nishibayashi (hereinafter “Nishibayashi”) in view of “Carbon Foam for Electronics Cooling” *Automotive Propulsion Materials, 2001 Annual Report*, pages 19-25, by Klett et al. (hereinafter “Klett”). Applicant respectfully disagrees that the claims are unpatentable over the cited art.

To reject a claim as obvious, the Examiner has the burden of establishing a *prima facie* case of obviousness. *In re Warner et al.*, 379 F.2d 1011 (C.C.P.A. 1967). To establish a *prima facie* case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974); MPEP 2143.03.

The Office Action states: “Nishibayashi also discloses coating a surface of the carbon

material with a second solder.” (Office Action, page 2). Applicant respectfully disagrees that the cited art teaches all the features of the claims.

Claim 14 includes a combination of features including, but not limited to, the features of “coating a carbon foam material with first solder” and “coating a surface of an integrated circuit with a second solder.” Claim 32 includes a combination of features including, but not limited to, the features of “applying a solder to a surface of a carbon foam material” and “applying a second solder to a surface of an integrated circuit.”

Nishibayashi states “[i]n the heat sink material for use with a semiconductor component thus implemented, the diamond particles 1, the metal carbide 2, and the metal 3 are brought into tight contact with each other both thermally and mechanically.” (Nishibayashi, column 6, lines 63-66). Nishibayashi appears to teach forming the heat sink material using a metal carbide and a metal. Nishibayashi does not appear to teach or suggest coating the carbon foam with a first solder and coating the integrated circuit with a second solder. Applicant submits that Nishibayashi does not appear to teach or suggest all the features of claims 14 and 32.

Klett states “the electronic chip is flipped upside down and the heat sink is bonded directly to the back of the chip, thereby reducing the thermal resistances typically found in chip applications.” (Klett, pages 22, column 2). Klett appears to teach directly bonding a heat sink to the back of a chip. Klett does not appear to teach or suggest coating the carbon foam with a first solder and coating the integrated circuit with a second solder. Applicant submits that the Nishibayashi and Klett do not appear to teach or suggest at least the quoted features of claims 14 and 32. Applicant respectfully requests removal of the rejection to independent claims 14 and 32 and the claims dependent thereon.

C. The Claims Are Not Obvious Over Nishibayashi In View Of Klett And In View of Colella Pursuant To 35 U.S.C. §103(a)

The Examiner rejected claims 15-18, 27-30, and 33 under 35 U.S.C. § 103(a) as being

unpatentable over Nishibayashi in view of Klett and in further view of U.S. Patent No. 5,783,316 to Colella et al. (hereinafter "Colella"). Applicant respectfully disagrees that the claims are unpatentable over the cited art.

For at least the reasons previously mentioned, Applicant submits that the features of claims 15-18 and 27-30, in combination with the features of claim 14 are not obvious over the cited art. Applicant requests removal of the rejections to claims 15-18 and 27-30.

D. The Claims Are Patentable Over Nishibayashi In View of Klett And In View Of Ohsaki Pursuant To 35 U.S.C. §103(a)

The Examiner rejected claims 25 and 26 under 35 U.S.C. § 103(a) as being unpatentable over Nishibayashi in view of Klett and in further view of U.S. Patent No. 6,198,143 to Ohsaki (hereinafter "Ohsaki"). Applicant respectfully disagrees that the claims are unpatentable over the cited art.

For at least the reasons previously mentioned, Applicant submits that the features of claims 25 and 26, in combination with the features of claim 14, are not obvious over the cited art. Applicant requests removal of the rejections to claims 25 and 26.

E. The Claims Are Patentable Over Nishibayashi In View of Klett And In View Of Colella and In View Of Kajiwara Pursuant To 35 U.S.C. §103(a)

The Examiner rejected claim 34 under 35 U.S.C. § 103(a) as being unpatentable over Nishibayashi in view of Klett and in further view of Colella and in further view of Japanese Patent No. 62-29151 to Kajiwara et al. (hereinafter "Kajiwara"). Applicant respectfully disagrees that the claims are unpatentable over the cited art, however, to expedite prosecution, Applicant has cancelled claims 34 and 35.

F. Additional Comments

Based on the above, Applicant submits that all claims are in condition for allowance.
Favorable reconsideration is respectfully requested.

Applicant believes no fees are required with the filing of this response. If any extension of time is required, Applicant hereby requests the appropriate extension of time. If any fees have been omitted or if any fees are required, please charge those fees to Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C. Deposit Account Number 50-1505/5181-83401/EBM.

Respectfully submitted,



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Date: 9/28/04